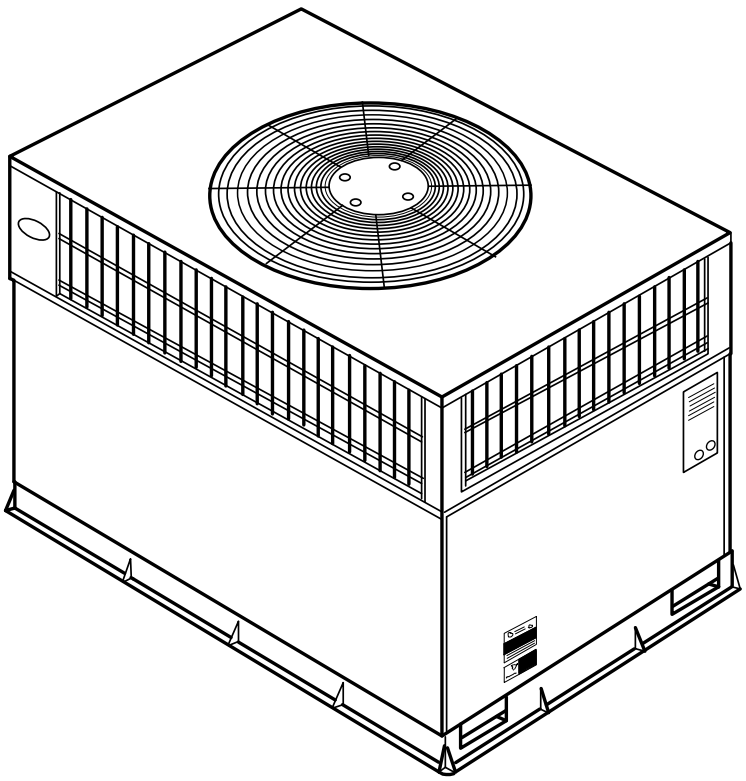
Carrier®
HEATING & COOLING

Product Data

50GX Single-Package Electric Cooling Units

2 to 5 Nominal Tons



UNIT 50GX

Single packaged Cooling Unit for Residential and Light Commercial use.

Features/Benefits

One-piece cooling unit with optional electric heater, low installation cost, dependable performance and easy maintenance.

Efficient operation

High-efficiency design with SEERs (Seasonal Energy Efficiency Ratios) of 12.0.

Easy Installation

Factory-assembled package is a compact, fully self-contained, electric cooling unit that is pre-wired, pre-piped, and pre-charged for minimum installation expense. 50GX units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units install easily on a rooftop or at ground-level.

Durable, dependable components

Compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Vibration isolation provides quiet operation. Compressors have internal high-pressure and overcurrent protection.

Convertible duct configuration

Unit is designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow with addition of two accessory duct covers.

Durable, dependable components.

Direct-drive multi-speed, PSC (permanent split capacitor) blower motor is standard on all 50GX models.

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Direct-drive, PSC condenser-fan motors are designed to help reduce energy consumption and provide for cooling operation down to 55°F outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Corporate thermostats include the Time Guard® II anti-short cycle protection circuitry. If a non-Carrier thermostat is used the Time Guard II field installed anti-short cycle kit is recommended.

Refrigerant system is designed to provide dependability. Liquid refrigerant strainers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

Evaporator and condenser coils are computer-designed for optimum heat transfer and cooling efficiency. The evaporator coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The condenser coil is internally mounted on the top tier of the unit. A FIOP (Factory-Installed Option) metal louvered grille is available on all models. Copper fin coils and pre-coated fin coils are available from the factory by special order. These coils are recommended in applications where aluminum fins are likely to be damaged due to corrosion. They are ideal for seacoast applications.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 7.2 bels. (See page 3.)

Easy to service cabinets provide easy single-panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with or without a mounting pad. Convenient handholds are provided to manipulate the unit on the jobsite. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. wide perimeter flange makes frame mounting on a rooftop easy.

Downflow operation is easily provided in the field to allow vertical ductwork connections. The basepan utilizes knockout style seals on the bottom openings to ensure a positive seal in the horizontal airflow mode.

Cabinets are constructed of heavy-duty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours of salt spray. Interior surfaces of the evaporator and electric heater compartments are insulated with cleanable semi-rigid insulation board, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain, which is provided with an external drain.

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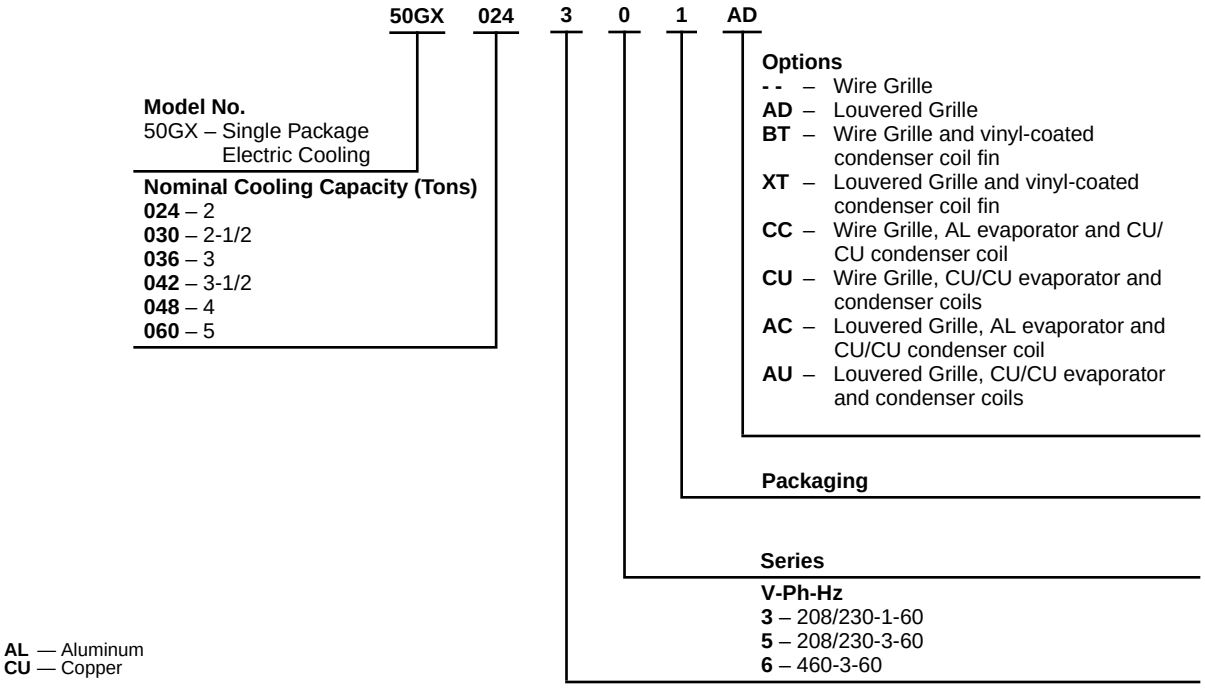
Model number nomenclature


50GX 024 3 0 1 AD
Model No.
50GX – Single Package Electric Cooling
Nominal Cooling Capacity (Tons)
024 – 2
030 – 2-1/2
036 – 3
042 – 3-1/2
048 – 4
060 – 5
Options
- - – Wire Grille
AD – Louvered Grille
BT – Wire Grille and vinyl-coated condenser coil fin
XT – Louvered Grille and vinyl-coated condenser coil fin
CC – Wire Grille, AL evaporator and CU/CU condenser coil
CU – Wire Grille, CU/CU evaporator and condenser coils
AC – Louvered Grille, AL evaporator and CU/CU condenser coil
AU – Louvered Grille, CU/CU evaporator and condenser coils
Packaging
Series
V-Ph-Hz
3 – 208/230-1-60
5 – 208/230-3-60
6 – 460-3-60

AL — Aluminum
CU — Copper

ARI* capacities

COOLING CAPACITIES AND EFFICIENCIES

UNIT 50GX	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITIES (Btuh)	SEER†	SOUND RATINGS‡ (Bels)
024	2	800	24,000	12.0	7.2
030	2-1/2	1000	30,000	12.0	7.2
036	3	1200	35,000	12.0	7.4
042	3-1/2	1400	42,000	12.0	7.4
048	4	1450	48,000	12.0	8.0
060	5	1750	58,000	12.0	7.8

LEGEND

Bels — Sound Levels (1 bel = 10 decibels)
db — Dry Bulb
SEER — Seasonal Energy Efficiency Ratio
wb — Wet Bulb

* Air Conditioning & Refrigeration Institute.

† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or ARI Standard 210/240-94.

‡ Tested in accordance with ARI Standard 270-95 (not listed in ARI).

NOTES:

1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
   Cooling Standard: 80°F db, 67°F wb indoor entering-air temperature and 95°F db outdoor entering-air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

Physical data

UNIT SIZE 50GX	024	030	036	042	048	060
NOMINAL CAPACITY (ton)	2	2-1/2	3	3-1/2	4	5
OPERATING WEIGHT (lb)	270	291	299	321	326	399
COMPRESSOR	Scroll					
REFRIGERANT (R-22)						
Quantity (lb)	3.4	4.4	5.2	6.4	7.2	8.1
REFRIGERANT METERING DEVICE	Acutrol™ Device					
Orifice ID (in.)	.034	.030	.032	.034	.034	.032
CONDENSER COIL						
Rows—Fins/in.	1—17	1—17	2—17	2—17	2—17	2—17
Face Area (sq ft)	9.1	12.7	9.1	12.3	12.3	16.4
CONDENSER FAN						
Nominal Cfm	2350	2350	2350	3300	3300	3300
Diameter (in.)	22	22	22	22	22	22
Motor Hp (Rpm)	1/8 (825)	1/8 (825)	1/8 (825)	1/4 (1100)	1/4 (1100)	1/4 (1100)
EVAPORATOR COIL						
Rows—Fins/in.	3—15	3—15	3—15	3—15	4—15	4—15
Face Area (sq ft)	3.1	3.1	3.7	4.7	4.7	4.7
EVAPORATOR BLOWER						
Nominal Airflow (Cfm)	800	1000	1200	1400	1600	1750
Size (in.)	10 x 10	10 x 10	11 x 10	11 x 10	11 x 10	11 x 10
Motor (Hp)	1/4	1/4	1/2	3/4	3/4	1.0
RETURN-AIR FILTERS (in.)*						
Throwaway	20 x 20	20 x 20	20 x 24	24 x 30	24 x 30	24 x 30

* Required filter sizes shown are based on the larger of the ARI (Air Conditioning & Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/min for throwaway type or 450 ft/min for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 in. wg.

Options and accessories

Factory-installed options

Louvered grille provides hail and vandalism protection. A wire grille is standard on all models. See model number nomenclature for louvered grille options.

Coil options include copper/copper and vinyl-coated construction for refrigerant coils. Units are shipped standard with copper tube/aluminum fin construction. See model number nomenclature for coil options.

Field-installed accessories

Economizer with Solid-State Controls and Barometric Relief Dampers
Manual Air Damper (25% open)
Electric Heaters
Filter Rack
Flat Roof Curbs (8-in. and 14-in.)
Square-to-Round Duct Transition Kit
Thermostats
Controls Upgrade Kit
Crankcase Heater
Rigging Kit
Low Ambient Kit (Motormaster® II Control)
Solid-State Time Guard® II Device
Duct Conversion Kit (Horizontal to Vertical)

Economizer with solid-state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.

Manual outside air damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.

Electric heaters provide heat in the unit when required. Each package has a heater module that slides into the controls compartment. Heater sizes range from 5.0 to 20.0 kW. The electric heater design allows the use of a single-point power supply for the entire unit, resulting in lower installed costs.

Flat roof curbs in both 8 in. and 14 in. sizes are available for roof mounted applications.

Square-to-round duct transition kit enables 024-048 size units to be fitted to 14 in. round ductwork.

Duct conversion kit consists of 2 duct covers to be placed over the horizontal supply and return duct openings when the unit is converted for downshot applications.

Thermostats provide control for the system heating and cooling functions. Thermostat models are available in both programmable and non-programmable versions.

Controls upgrade kit supplies high and low pressure safety protection and protects the unit from operating in unsuitable conditions.

Crankcase heater provides anti-floodback protection for low-load cooling applications.

Rigging kit includes lifting brackets which are inserted into the basepan handholds to rig unit for rooftop applications.

Low-ambient kit (Motormaster II control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F.

Solid-state Time Guard II device provides short-cycling protection for the compressor. Not required with corporate electronic thermostats.

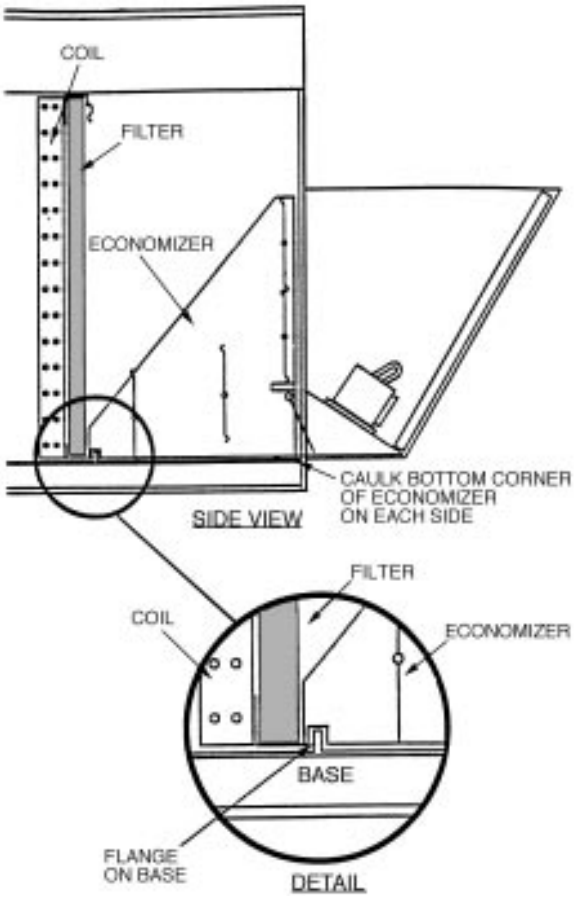
Filter rack features easy installation, serviceability, and high-filtering performance for vertical applications.

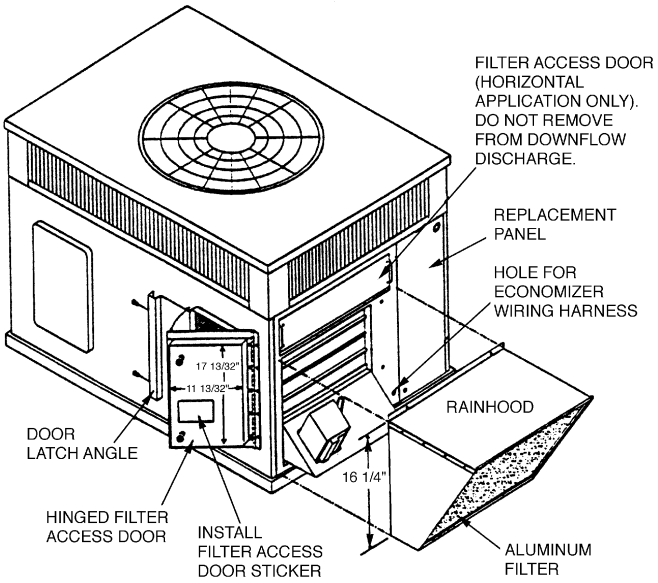
ELECTRIC HEATERS

ODS CATALOG ORDERING NO.	NOMINAL CAPACITY (kW)	USED WITH SIZES					
		024	030	036	042	048	060
ELECTRIC HEATERS (208/230 — SINGLE PHASE — 60 Hz)							
CPHEATER052A00	5.0	X	X	X	X	X	X
CPHEATER065A00	10.0	X	X	X	X	X	X
CPHEATER050A00	10.0				X	X	X
CPHEATER051A00	15.0		X	X	X	X	X
CPHEATER054A00	20.0				X	X	X
ELECTRIC HEATERS (208/230 — 3 PHASE — 60 Hz)							
CPHEATER055A00	5.0		X	X	X	X	X
CPHEATER056A00	10.0		X	X	X	X	X
CPHEATER057A00	15.0		X	X	X	X	X
CPHEATER059A00	20.0				X	X	X
ELECTRIC HEATERS (460 V — 3 PHASE — 60 Hz)							
CPHEATER060A00	5.0			X	X	X	X
CPHEATER061A00	10.0			X	X	X	X
CPHEATER062A00	15.0			X	X	X	X
CPHEATER063A00	20.0				X	X	X

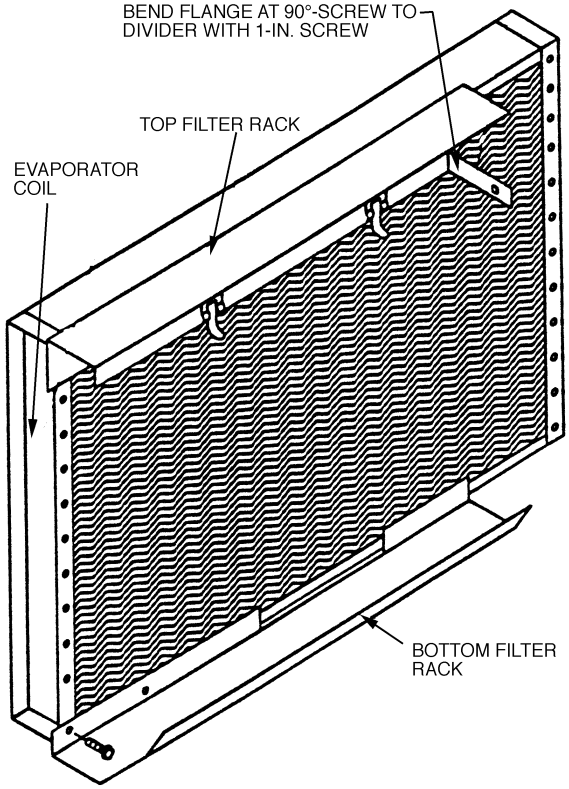
LEGEND
ODS — Order Distribution System
NOTE: Electric heaters are rated at 240 v and 480 v. Refer to Multiplication Factors table for other voltages.

ECONOMIZER

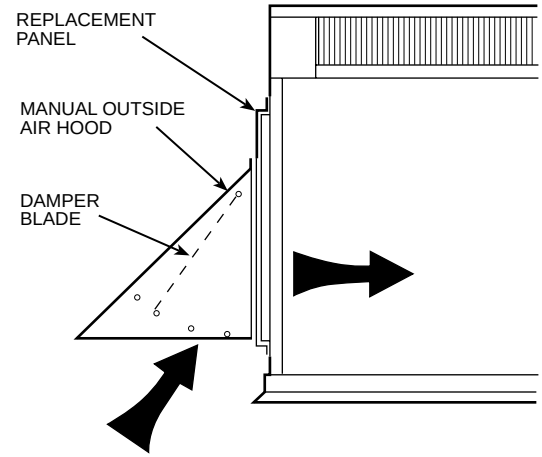




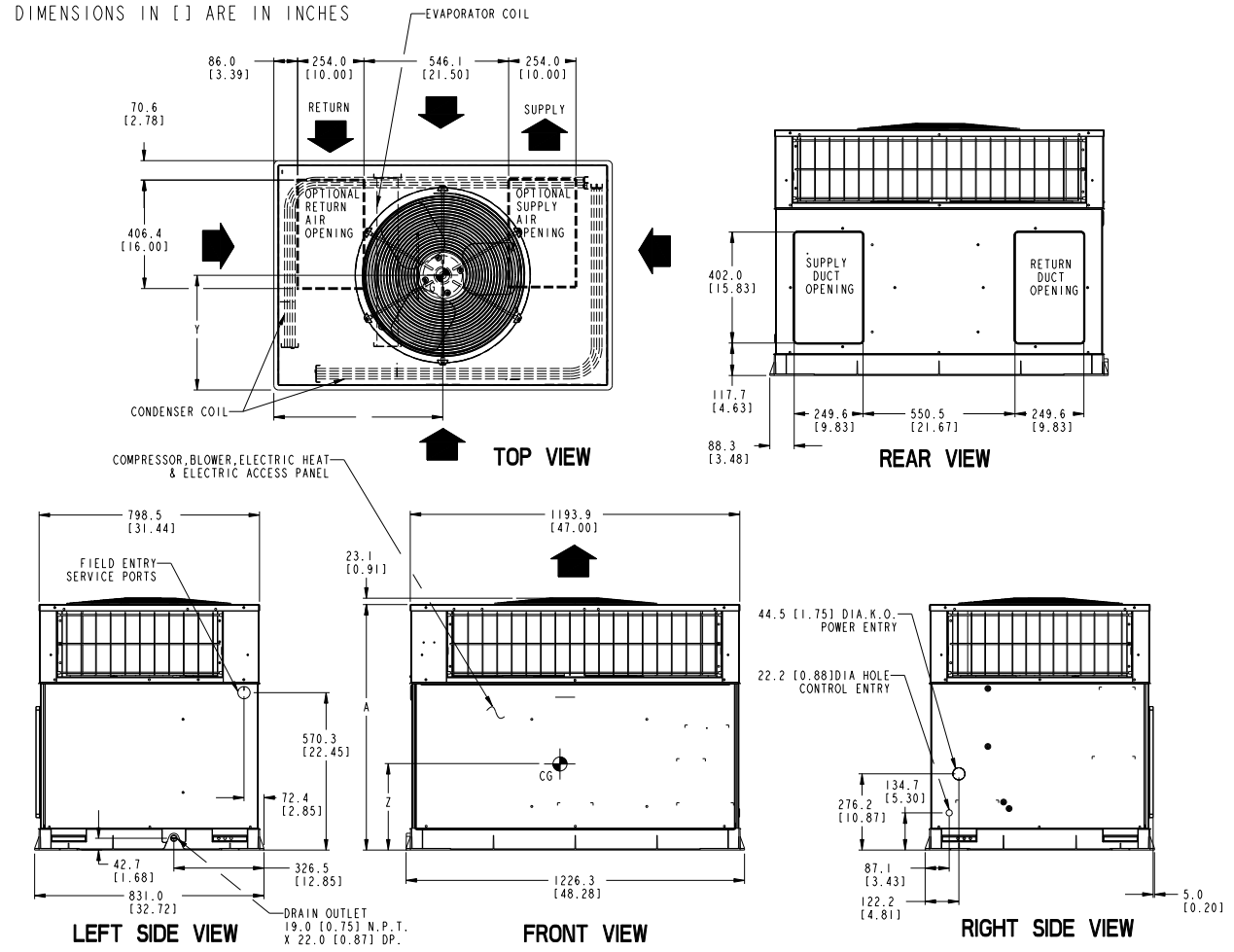
FILTER RACK



MANUAL OUTSIDE AIR DAMPER



Base unit dimensions—50GX024-036



REQUIRED CLEARANCE TO COMBUSTIBLE MATL.

	MILLIMETERS [IN.]
TOP OF UNIT	355.6 [14.00]
DUCT SIDE OF UNIT	50.8 [2.00]
SIDE OPPOSITE DUCTS	355.6 [14.00]
BOTTOM OF UNIT	12.7 [0.50]
ELECTRIC HEAT PANEL	914.4 [36.00]

NEC. REQUIRED CLEARANCES.

	MILLIMETERS [IN.]
BETWEEN UNITS, POWER ENTRY SIDE	1066.8 [42.00]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	914.0 [36.00]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	1066.8 [42.00]

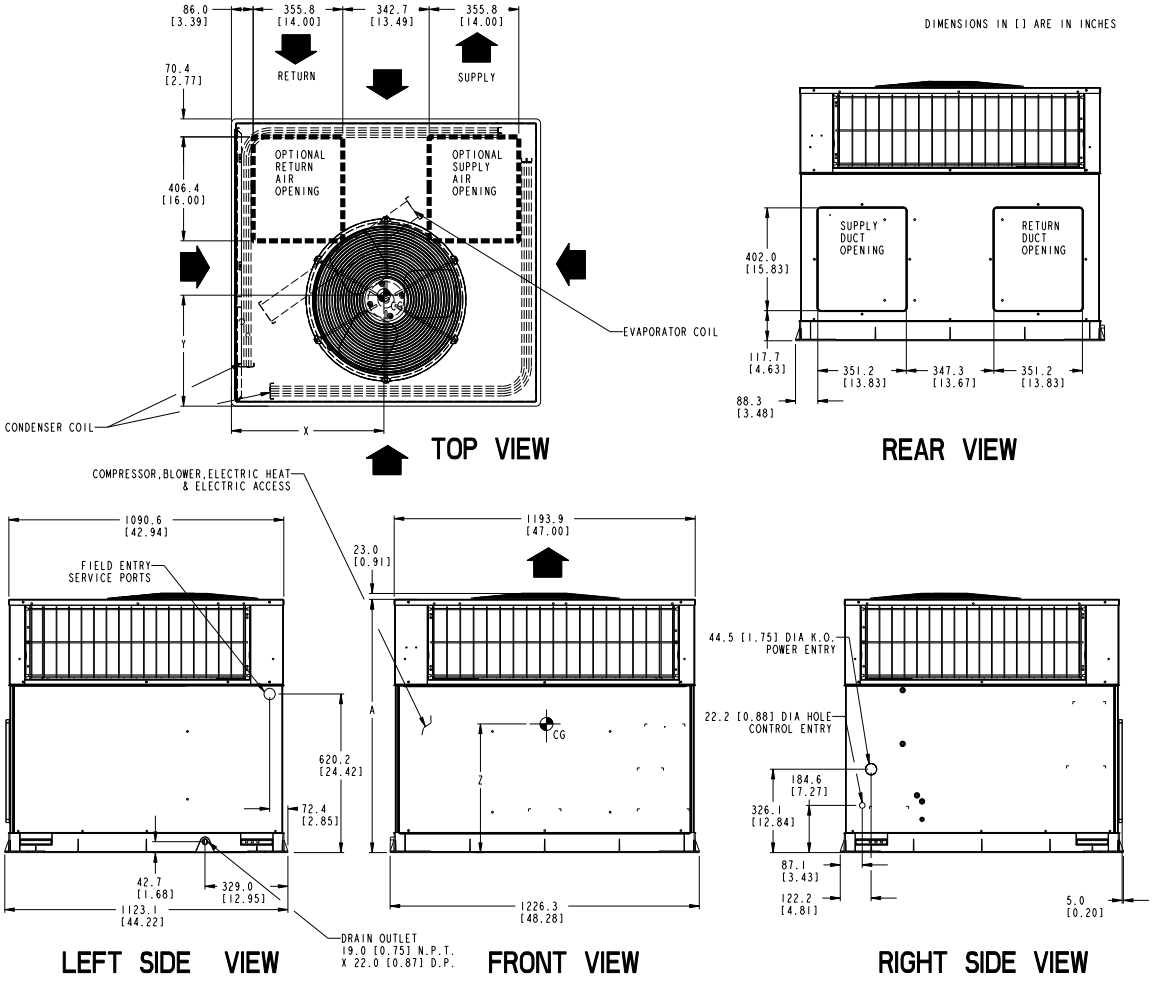
REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	MILLIMETERS [IN.]
EVAP. COIL ACCESS SIDE	914.0 [36.00]
POWER ENTRY SIDE	1066.8 [42.00]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	1219.2 [48.00]
SIDE OPPOSITE DUCTS	914.0 [36.00]
DUCT PANEL	304.8 [12.00]*

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 304.8 [12.00] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISE.

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT in. [mm] "A"	CENTER OF GRAVITY in. [mm]		
		lb	kg		X	Y	Z
50GX024	208/230-1-60	270	122.5	35.02 [889.5]	18.5 [469.9]	14.5 [368.3]	16.0 [406.4]
50GX030	208/230-1-60, 208/230-3-60	291	132.0	39.02 [991.1]	19.5 [495.3]	15.5 [393.7]	17.6 [447.0]
50GX036	208/230-1-60, 208/230-3-60, 460-3-60	299	135.6	35.02 [889.5]	19.5 [495.3]	15.3 [387.4]	16.5 [419.1]

Base unit dimensions—50GX024-036



REQUIRED CLEARANCE TO COMBUSTIBLE MATL.

	MILLIMETERS [IN.]
TOP OF UNIT	355.6 [14.00]
DUCT SIDE OF UNIT	50.8 [2.00]
SIDE OPPOSITE DUCTS	355.6 [14.00]
BOTTOM OF UNIT	12.7 [0.50]
ELECTRIC HEAT PANEL	914.4 [36.00]

NEC. REQUIRED CLEARANCES.

	MILLIMETERS [IN.]
BETWEEN UNITS, POWER ENTRY SIDE	1066.8 [42.00]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	914.0 [36.00]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	1066.8 [42.00]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	MILLIMETERS [IN.]
EVAP. COIL ACCESS SIDE	914.0 [36.00]
POWER ENTRY SIDE	1066.8 [42.00]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	1219.2 [48.00]
SIDE OPPOSITE DUCTS	914.0 [36.00]
DUCT PANEL	304.8 [12.00] *

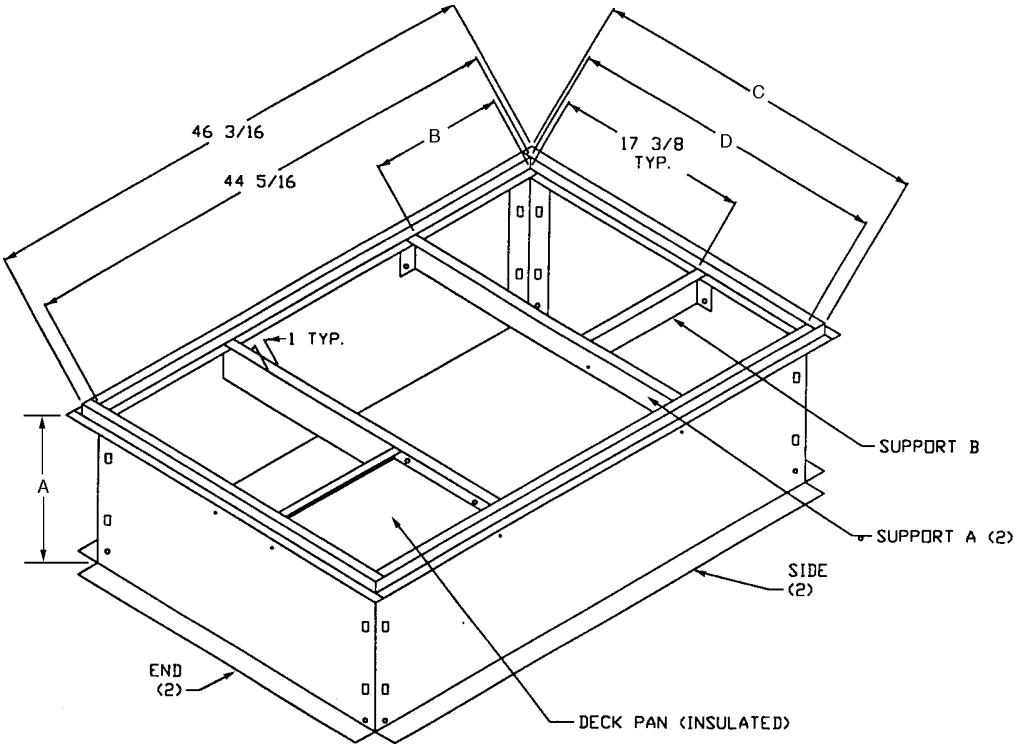
*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 304.8 [12.00] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISE.

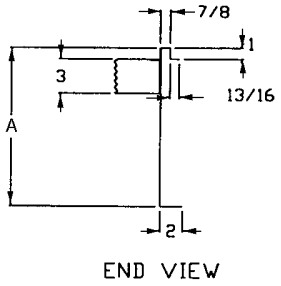
UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT in. [mm] "A"	CENTER OF GRAVITY in. [mm]		
		lb	kg		X	Y	Z
50GX042	208/230-1-60, 208/230-3-60, 460-3-60	321	145.6	38.98 [990.2]	20.5 [520.7]	16.8 [425.5]	16.6 [421.6]
50GX048	208-230-1-60, 208/230-3/60, 460-3-60	326	147.8	38.98 [990.2]	19.5 [495.3]	17.6 [447.6]	18.0 [457.2]
50GX060	208/230-1-60, 208/230-3-60, 460-3-60	399	181.0	42.98 [1091.7]	20.5 [520.1]	16.3 [412.8]	17.6 [447.0]

Accessory dimensions

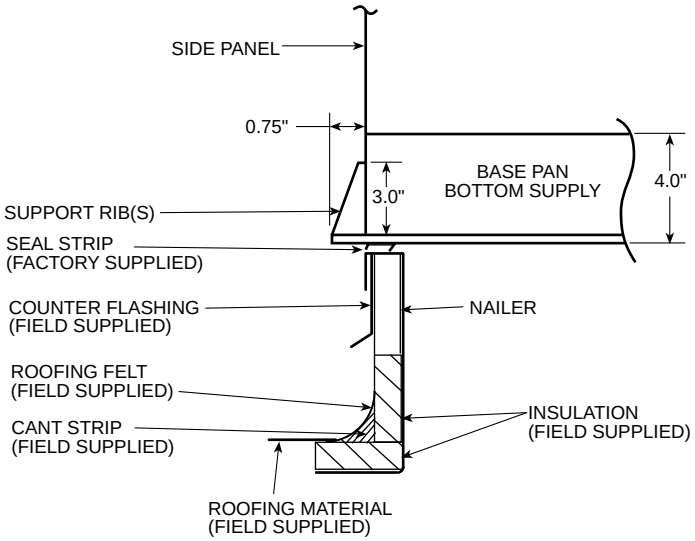
	UNIT SIZE	ODS CATALOG ORDERING NO.	A in. [mm]	B in. [mm]	C in. [mm]	D in. [mm]
FLAT CURB	50GX024-036	CPRFCURB006A00	8 [203]	11-27/32 [301]	30-5/8 [778]	28-3/4 [730]
		CPRFCURB007A00	14 [356]	11-27/32 [301]	30-5/8 [778]	28-3/4 [730]
	50GX042-060	CPRFCURB008A00	8 [203]	15-27/32 [402]	42-1/8 [1070]	40-1/4 [1022]
		CPRFCURB009A00	14 [356]	15-27/32 [402]	42-1/8 [1070]	40-1/4 [1022]

NOTES:
1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied as required to unit being installed.
3. Dimensions in [ ] are in millimeters.
4. Roof curb is made of 16 gage steel.
5. Table lists only the dimensions per part number that have changed.
6. Attach ductwork to curb (Flanges of duct rest on curb).
7. Insulated panels: 1-in. thick fiberglass 1 lb density.
8. Dimensions are in inches.





END VIEW



Full Perimeter Curb

I Determine cooling and heating requirements at design conditions:

Given:

Required Cooling Capacity (TC) . . . . . 35,000 Btuh
Sensible Heat Capacity (SHC) . . . . . 25,000 Btuh
Required Heating Capacity . . . . . 15,000 Btuh
Condenser Entering Air Temperature . . . . . 95°F
Indoor-Air Temperature . . . . . 80°F edb, 67°F ewb
Evaporator Air Quantity . . . . . .1200 cfm
External Static Pressure. . . . . 0.2 in. wg
Electrical Characteristics. 208-1-60

II Select unit based on required cooling capacity.

Enter Net Cooling Capacities table at condenser entering temperature of 95°F. Unit 50GX036 at 1200 cfm and 67°F ewb (entering wet bulb) will provide a total capacity of 35,000 Btuh and a SHC of 25,200 Btuh. Calculate SHC correction, if required, using Note 4 under Cooling Capacities tables.

III Select electric heat.

The required heating capacity is 15,000 Btuh (given). Determine the electric heat capacity in kW.

$$\frac{15{,}000 \text{ Btuh}}{3414 \text{ Btuh/kW}} = 4.4 \text{ kW of heat required}$$

Enter the Electric Heater Packages table for 208/240, single-phase, 50GX036 unit. The 5-kW heater at 240v most closely satisfies the heating required. To calculate kW at 208v, multiply the heater kW by multiplication factor 0.75 found in the Wattage Multiplication Factors table.

5 kW x 0.75 = 3.75 kW

3.75 kW x 3414 Btuh/kW = 12,802.50 Btuh

IV Determine fan speed and power requirements at design conditions.

Before entering the air delivery tables, calculate the total static pressure required. From the given, Filter Pressure Drop table, the Accessory Electric Heat Pressure Drop table, and the Wet Coil Pressure Drop table, find:

External static pressure	0.200 in. wg
Filter	0.200 in. wg
Total static pressure	0.400 in. wg

Enter the table for Wet Coil Air Delivery — Horizontal Discharge, 230 and 460 V. At 0.4 in. wg external static pressure and medium speed, the motor delivers 1288 cfm. Adjusting for 208V, the motor delivers 1159 cfm (deduct 10%).

- **Select unit that corresponds to power source available.**

The Electrical Data table shows that the unit is designed to operate at 208-1-60.

Performance data

NET COOLING CAPACITIES

50GX024

Temp (F) Air Ent Condenser		Evaporator Air—Cfm/Bypass Factors—BF								
		700/0.081			800/0.106			900/0.135		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
85	TC	22.3	24.9	27.6	22.9	25.3	28.1	23.3	25.6	28.3
	SHC	20.2	16.9	13.6	21.7	18.0	14.2	23.0	19.0	14.7
	kW	1.89	1.91	1.93	1.96	1.99	2.01	2.01	2.09	2.11
95	TC	21.4	23.8	26.5	21.9	24.0	27.0	22.4	24.5	27.2
	SHC	19.8	16.5	13.2	21.3	17.4	13.8	22.4	18.6	14.3
	kW	2.09	2.12	2.14	2.15	2.25	2.22	2.21	2.30	2.32
105	TC	20.5	22.8	25.4	21.0	23.2	25.8	21.5	23.3	26.0
	SHC	19.3	16.1	12.8	20.7	17.2	13.4	21.5	18.1	13.9
	kW	2.30	2.34	2.36	2.35	2.42	2.45	2.42	2.52	2.54
115	TC	19.5	21.7	24.2	20.0	22.0	24.5	20.6	22.1	24.6
	SHC	18.8	15.7	12.4	20.0	16.7	13.0	20.6	17.7	13.4
	kW	2.53	2.58	2.60	2.58	2.66	2.69	2.66	2.75	2.79
125	TC	18.5	20.6	23.0	19.2	20.8	23.2	19.7	20.9	23.3
	SHC	18.3	15.2	11.9	19.2	16.3	12.5	19.7	17.2	13.0
	kW	2.78	2.84	2.88	2.84	2.93	2.96	2.93	3.02	3.06

50GX030

Temp (F) Air Ent Condenser		Evaporator Air—Cfm/Bypass Factors—BF								
		875/0.138			1000/0.149			1125/0.159		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
85	TC	27.5	30.2	32.7	28.2	30.9	33.4	28.8	31.4	33.8
	SHC	24.4	20.3	16.0	26.2	21.5	16.7	27.8	22.7	17.4
	kW	2.58	2.60	2.62	2.59	2.61	2.62	2.59	2.61	2.63
95	TC	26.2	29.1	31.8	27.0	30.0	32.4	27.6	30.3	32.9
	SHC	23.9	20.0	15.7	25.8	21.3	16.5	27.6	22.6	17.2
	kW	2.87	2.88	2.89	2.87	2.88	2.90	2.87	2.88	2.90
105	TC	24.9	27.8	30.6	25.6	28.4	31.2	26.4	29.0	31.7
	SHC	23.1	19.5	15.4	25.1	21.0	16.2	26.4	22.3	17.0
	kW	3.15	3.18	3.20	3.17	3.19	3.20	3.18	3.19	3.20
115	TC	23.3	26.2	29.2	24.1	26.9	29.8	25.0	27.4	30.3
	SHC	22.3	18.9	14.9	24.1	20.4	15.8	25.0	21.8	16.6
	kW	3.45	3.52	3.52	3.46	3.52	3.53	3.49	3.52	3.53
125	TC	21.6	24.5	27.6	22.6	25.1	28.2	23.6	25.6	28.6
	SHC	21.6	18.1	14.4	22.6	19.6	15.3	23.6	21.1	16.1
	kW	3.67	3.85	3.88	3.80	3.86	3.89	3.83	3.87	3.89

See Legend and Notes on page 13.

Performance data (cont)

NET COOLING CAPACITIES (cont)

50GX036

Temp (F) Air Ent Condenser		Evaporator Air—Cfm/Bypass Factors—BF								
		1050/0.111			1200/0.142			1350/0.181		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
85	TC	31.4	36.2	40.6	32.4	37.1	41.2	33.1	37.6	41.5
	SHC	28.7	24.4	19.7	30.9	26.0	20.4	33.1	27.3	20.9
	kW	2.82	2.88	2.93	2.93	3.01	3.06	3.03	3.16	3.20
95	TC	30.0	34.3	39.0	30.8	35.0	39.6	31.7	35.7	39.9
	SHC	28.0	23.7	19.2	30.1	25.2	19.9	31.7	26.7	20.5
	kW	3.12	3.21	3.26	3.22	3.37	3.38	3.34	3.48	3.53
105	TC	28.6	32.6	37.3	29.4	33.4	37.9	30.4	34.0	38.2
	SHC	27.3	23.1	18.6	29.4	24.7	19.4	30.4	26.1	20.0
	kW	3.45	3.56	3.60	3.53	3.68	3.73	3.67	3.83	3.88
115	TC	27.0	30.8	35.7	28.2	31.5	36.2	29.1	32.0	36.4
	SHC	26.4	22.4	18.0	28.2	23.9	18.8	29.1	25.4	19.4
	kW	3.77	3.93	3.97	3.87	4.06	4.11	4.03	4.20	4.26
125	TC	25.5	29.0	33.9	26.7	29.4	34.4	27.8	29.8	34.6
	SHC	25.5	21.7	17.4	26.7	23.2	18.2	27.8	24.6	18.8
	kW	4.09	4.29	4.37	4.22	4.44	4.50	4.40	4.58	4.65

50GX042

Temp (F) Air Ent Condenser		Evaporator Air—Cfm/Bypass Factors—BF								
		1225/0.057			1400/0.075			1575/0.099		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
85	TC	39.2	42.9	46.1	39.8	43.3	46.3	40.2	43.3	46.2
	SHC	35.4	29.5	23.4	37.4	30.7	23.8	39.1	31.6	24.0
	kW	3.81	3.82	3.79	3.93	3.97	3.93	4.06	4.15	4.09
95	TC	37.6	41.6	44.9	38.3	42.0	45.1	38.7	42.0	45.1
	SHC	34.4	29.0	23.0	36.6	30.3	23.5	38.7	31.3	23.8
	kW	3.80	3.82	3.80	3.91	4.04	3.94	4.03	4.16	4.11
105	TC	35.9	40.0	43.6	36.6	40.3	43.7	37.3	40.3	43.6
	SHC	33.6	28.4	22.5	35.6	29.7	23.0	37.3	30.8	23.4
	kW	3.79	3.83	3.80	3.89	3.98	3.95	3.99	4.17	4.12
115	TC	34.2	38.2	42.0	34.9	38.5	42.1	35.8	38.5	42.0
	SHC	32.7	27.7	21.9	34.9	29.1	22.5	35.8	30.2	22.9
	kW	3.77	3.83	3.81	3.86	3.99	3.95	3.93	4.18	4.13
125	TC	32.5	36.4	40.1	33.5	36.6	40.2	34.3	36.6	40.1
	SHC	31.8	26.9	21.2	33.5	28.3	21.8	34.3	29.4	22.2
	kW	3.75	3.83	3.81	3.82	3.99	3.95	3.91	4.18	4.13

See Legend and Notes on page 13.

Performance data (cont)

NET COOLING CAPACITIES (cont)

50GX048

Temp (F) Air Ent Condenser		Evaporator Air—Cfm/Bypass Factors—BF								
		1400/0.050			1600/0.085			1800/0.119		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
85	TC	45.2	49.7	54.7	46.4	50.9	56.0	47.5	51.9	57.1
	SHC	41.4	34.6	27.6	44.6	37.2	29.2	47.5	39.6	30.8
	kW	4.04	4.08	4.12	4.05	4.09	4.13	4.06	4.10	4.14
95	TC	43.5	47.8	52.5	44.6	48.0	53.7	45.7	49.8	54.6
	SHC	40.4	33.7	26.7	43.4	34.9	28.3	45.7	38.6	29.8
	kW	4.45	4.50	4.55	4.46	4.62	4.56	4.47	4.53	4.58
105	TC	41.3	45.4	49.8	42.3	46.4	50.9	43.4	47.2	51.7
	SHC	39.0	32.5	25.6	41.6	34.9	27.1	43.4	37.2	28.6
	kW	4.91	4.95	5.00	4.93	4.97	5.02	4.93	4.98	5.03
115	TC	37.6	42.4	46.4	39.0	43.3	47.5	40.6	44.0	48.3
	SHC	35.4	30.9	24.1	38.3	32.9	25.6	40.6	35.0	27.0
	kW	5.39	5.46	5.51	5.41	5.48	5.43	5.44	5.49	5.55
125	TC	33.9	36.1	42.5	35.8	37.8	43.4	37.4	38.8	44.1
	SHC	27.8	25.5	22.1	33.7	28.0	23.4	37.4	30.1	24.6
	kW	6.30	5.94	6.05	6.18	5.97	6.06	6.15	5.98	6.08

50GX060

Temp (F) Air Ent Condenser		Evaporator Air—Cfm/Bypass Factors—BF								
		1750/0.082			2000/0.130			2250/0.162		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
85	TC	55.2	60.9	66.4	56.1	61.5	66.4	56.6	61.6	66.9
	SHC	49.9	42.1	33.8	53.2	44.3	33.9	55.9	46.3	35.3
	kW	4.92	4.97	5.00	5.14	5.23	5.28	5.41	5.55	5.59
95	TC	52.2	58.0	63.7	53.2	58.5	64.1	53.9	58.4	64.0
	SHC	48.2	41.0	32.7	51.8	43.2	33.6	53.9	44.8	34.2
	kW	5.39	5.57	5.50	5.64	5.75	5.77	5.90	6.03	6.09
105	TC	49.1	54.4	60.4	49.9	54.9	60.7	50.9	55.0	60.5
	SHC	47.3	39.4	31.5	49.9	41.6	32.4	50.9	43.5	33.0
	kW	5.87	5.98	6.02	6.13	6.22	6.30	6.34	6.57	6.62
115	TC	45.9	50.2	55.2	46.8	50.3	55.5	47.3	50.2	55.3
	SHC	45.3	37.4	29.4	46.8	39.4	29.8	47.3	41.0	30.8
	kW	6.39	6.48	6.54	6.57	6.75	6.81	6.85	7.07	7.14
125	TC	42.5	46.5	50.6	43.7	46.9	50.6	44.9	46.2	50.2
	SHC	42.5	36.1	27.3	43.7	38.4	28.2	44.9	39.5	28.6
	kW	7.03	7.13	7.13	7.22	7.38	7.40	7.51	7.67	7.72

LEGEND
BF—Bypass Factor
Ewb—Entering Wet-Bulb
kW—Total Unit Power Input
SHC—Sensible Heat Capacity (1000 Btuh)
TC—Total Capacity (1000 Btuh) (net)

NOTES:
1. Ratings are net; they account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

t_{lwb} = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h_{lwb})

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

4. The SHC is based on 80 F edb temperature of air entering evaporator coil.
   Below 80 F edb, subtract (corr factor x cfm) from SHC.
   Above 80 F edb, add (corr factor x cfm) to SHC.
   Correction Factor = 1.10 x (1 + BF) x (edb + 80).

WET COIL DELIVERY—HORIZONTAL AND DOWNFLOW DISCHARGE UNIT 50GX024-060

230 AND 460 VOLT

Unit 50GX	Motor Speed		External Static Pressure (in.wg)										
			0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
024	Low	Watts	281	282	281	278	276	—	—	—	—	—	—
		Cfm	833	776	702	638	554						
	Med	Watts	—	—	—	375	370	363	357	352	—	—	—
		Cfm	—	—	—	894	800	754	636	518	—	—	—
	High	Watts	—	—	—	—	—	468	457	444	431	423	—
		Cfm	—	—	—	—	—	884	802	697	467	397	—
030	Low	Watts	246	244	243	241	—	—	—	—	—	—	—
		Cfm	910	806	749	680	—	—	—	—	—	—	—
	Med	Watts	343	339	336	332	328	322	317	—	—	—	—
		Cfm	1148	1104	1028	958	850	782	645	—	—	—	—
	High	Watts	—	—	—	—	441	432	421	410	400	—	—
		Cfm	—	—	—	—	1102	988	896	783	529	—	—
036	Low	Watts	—	470	458	445	430	415	399	384	—	—	—
		Cfm	—	1350	1257	1240	1199	1107	1015	924	—	—	—
	Med	Watts	—	—	514	501	487	471	455	438	422	—	—
		Cfm	—	—	1338	1295	1288	1181	1111	968	813	—	—
	High	Watts	—	—	—	646	636	626	614	602	589	—	—
		Cfm	—	—	—	1385	1268	1196	1159	1032	948	—	—
042	Low	Watts	—	625	614	605	593	574	549	518	485	454	—
		Cfm	—	1540	1510	1473	1396	1348	1288	1192	1124	1037	—
	Med	Watts	—	—	—	—	726	695	661	625	591	561	540
		Cfm	—	—	—	—	1648	1593	1530	1446	1352	1237	1114
	High	Watts	—	—	—	—	—	—	—	790	766	742	713
		Cfm	—	—	—	—	—	—	—	1616	1492	1394	1283
048	Low	Watts	—	588	577	572	566	556	539	517	491	—	—
		Cfm	—	1514	1543	1467	1408	1374	1324	1237	1161	—	—
	Med	Watts	—	756	738	719	699	676	650	623	596	572	555
		Cfm	—	1785	1765	1706	1628	1577	1503	1421	1357	1298	1253
	High	Watts	—	—	—	—	896	862	829	800	775	752	728
		Cfm	—	—	—	—	1880	1804	1704	1547	1565	1406	1367
060	Low	Watts	903	898	873	842	814	792	777	764	743	701	618
		Cfm	2190	2158	2081	2026	1958	1866	1822	1744	1678	1535	1377
	Med	Watts	—	1002	978	960	941	914	880	839	798	764	750
		Cfm	—	2389	2291	2216	2120	2020	1952	1852	1727	1617	1549
	High	Watts	—	—	—	1080	1080	1066	1041	1008	972	938	—
		Cfm	—	—	—	2316	2181	2122	2101	2000	1802	1672	—

NOTE: Deduct 10% For 208v.

Performance data (cont)

ECONOMIZER 1-in. FILTER PRESSURE DROP (in. wg)

UNIT50GX	PRESSURE DROP
024-036	0.20
042-060	0.25

OUTDOOR SOUND: ONE-THIRD OCTAVE BAND DATA—DECIBELS

UNIT	50GX					
Frequency (Hz)	**024**	**030**	**036**	**042**	**048**	**060**
63	43.6	52.6	49.5	56.8	54.7	55.5
125	54.1	47.3	56.4	56.9	64.0	64.1
250	57.1	58.2	61.0	64.0	69.9	66.6
500	64.9	63.2	67.4	68.0	73.3	70.6
1000	67.6	66.1	68.1	67.7	73.5	72.6
2000	64.1	64.0	65.8	64.6	70.4	69.8
4000	59.7	61.3	64.8	61.3	66.7	67.5
8000	53.5	57.0	56.8	55.5	60.5	61.6

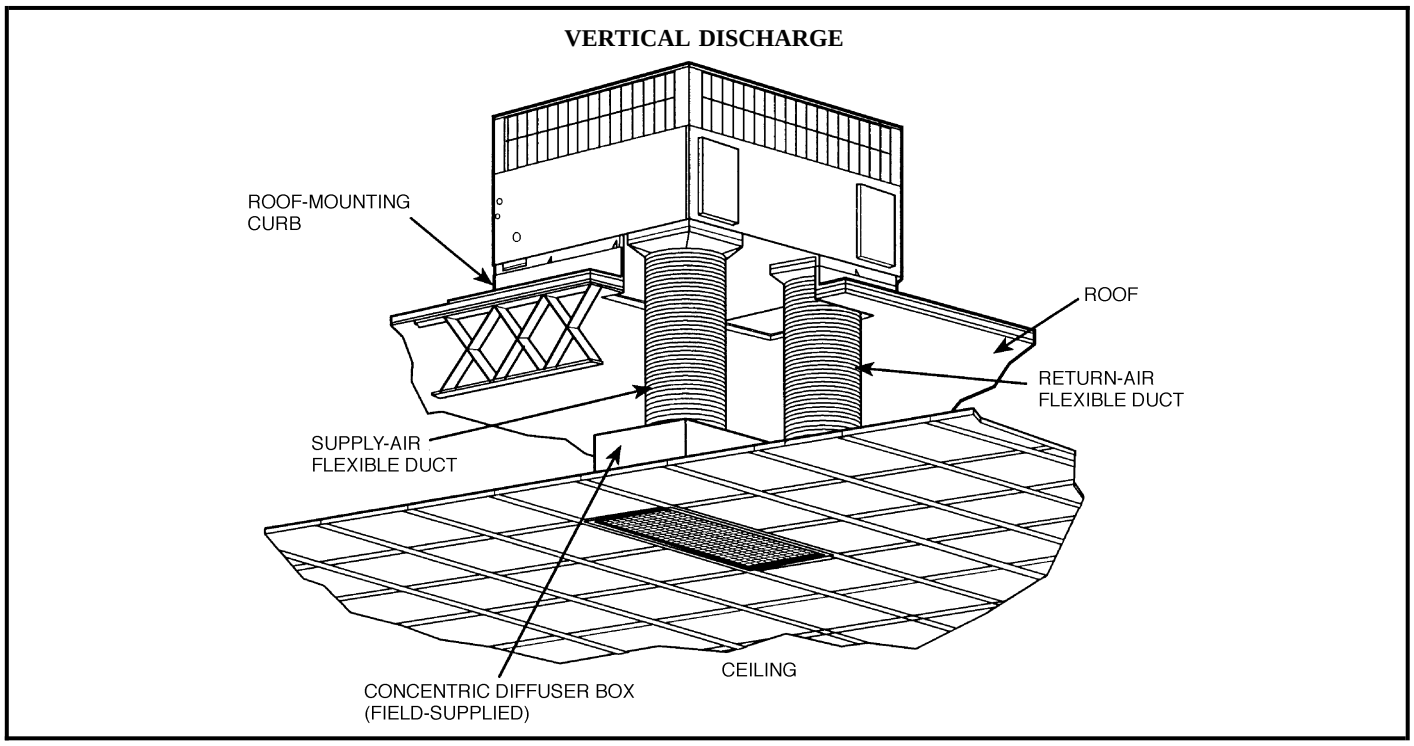
Bels — Sound Levels (1 bel = 10 decibels)

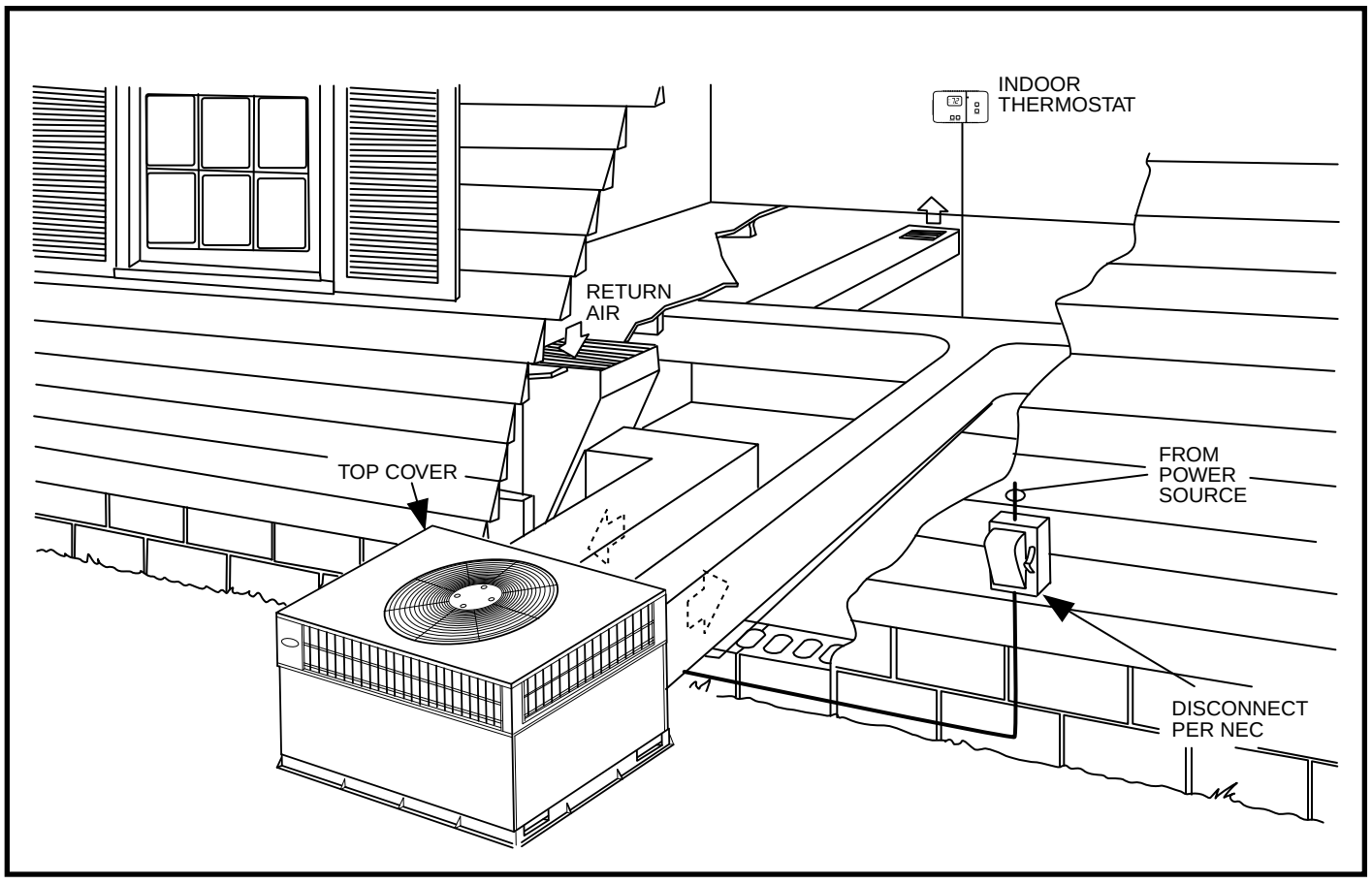
MULTIPLICATION FACTORS

HEATER kW RATING	VOLTAGE DISTRIBUTION V/3/60	MULTIPLICATION FACTOR
240	200 208 230 240	.69 .75 .92 1.00
480	440 460 480	.84 .92 1.00

Example: 15.0 kW (at 240v) heater on 208 v
= 15.0 (.75 mult factor)
= 11.25 capacity at 208 v

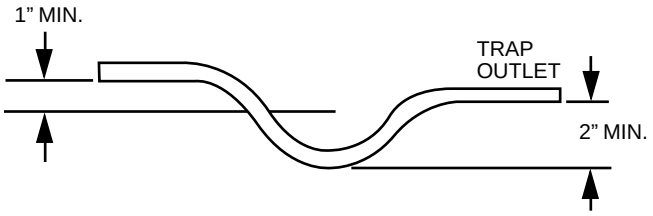
Typical piping and wiring





Application data

Condensate trap — A 2-in. condensate trap must be field supplied.



Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory-installed inserts in the down-flow openings. Remove the inserts similar to removing an electrical knock-out. Use an accessory duct cover to seal the horizontal discharge openings in the unit. Units installed in horizontal discharge orientation do not require duct covers.

Airflow — Units are draw-thru in the Cooling mode and blow-thru in the Heating mode.

Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 cfm/ton.

Minimum cooling airflow — The minimum cooling airflow is 350 cfm/ton.

Minimum ambient operating temperature — All standard units have a minimum ambient operating temperature of 55°F. With accessory low ambient temperature kit, units can operate at temperatures down to 0°F.

Electrical data

UNIT SIZE 50GX	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OUTDOOR FAN MOTOR	INDOOR FAN MOTOR	ELECTRIC HEAT		POWER SUPPLY	
		Min	Max	RLA	LRA	FLA	FLA	Nominal kW*	FLA	UNIT MCA	MOCP
								—/—	—/—	15.7/15.7	20/20
024	208/230-1-60	187	253	10.3	56.0	0.8	2.0	3.8/5.0	18.1/20.8	25.1/28.5	47.6/54.6
								7.5/10	36.1/41.7	47.6/54.6	50/60
	208/230-1-60	187	253	13.5	73.0	0.8	2.1	—/—	—/—	19.8/19.8	25/25
								3.8/5.0	18.1/20.8	25.2/28.7	25/30
								7.5/10	36.1/41.7	47.8/54.7	50/60
030							2.1	11.3/15	54.2/62.5	70.3/80.8	80/90
	208/230-3-60	187	253	9.0	63.0	0.8		—/—	—/—	14.2/14.2	20/20
								3.8/5.0	10.4/12.0	15.7/17.7	20/20
								7.5/10	20.8/24.1	28.7/32.7	30/35
								11.3/15	31.3/36.1	70.3/80.8	80/90
	208/230-1-60	187	253	16.7	97.0	0.8	3.6	—/—	—/—	25.3/25.3	30/30
								3.8/5.0	18.1/20.8	27.1/30.5	30/30
								7.5/10	36.1/41.7	49.6/56.6	50/60
								11.3/15	54.2/62.5	72.2/82.6	80/90
	208/230-3-60	187	253	11.2	75.0	0.8	3.6	—/—	—/—	18.4/18.4	25/25
036								3.8/5.0	10.4/12.0	18.4/19.5	25/25
								7.5/10	20.8/24.1	30.6/34.6	35/35
								11.3/15	31.3/36.1	43.6/49.6	45/50
	460-3-60	414	506	5.4	37.5	0.9	1.9	—	—	9.6	15.00
								5	6.00	9.9	15.00
								10	12.00	17.4	20.00
								15	18.00	24.9	25.00
	208/230-1-60	187	253	17.9	104.0	1.6	4.1	—/—	—/—	28.1/28.1	35/35
								3.8/5.0	18.1/20.8	28.1/31.2	35/35
								7.5/10	36.1/41.7	50.3/57.2	60/60
								11.3/15	54.2/62.5	72.8/83.3	90.00
								15.0/20.0	72.2/83.3	95.4/109.3	100/110
	208/230-3-60	187	253	12.4	88.0	1.6	4.1	—/—	—/—	21.2/21.2	25/25
								3.8/5.0	10.4/12.0	21.2/21.2	25/25
042								7.5/10	20.8/24.1	31.2/35.2	35/40
								11.3/15	31.3/36.1	44.2/50.2	45/60
								15.0/20.0	41.7/48.1	57.1/65.1	60/70
	460-3-60	414	506	6.1	44.0	0.9	2.0	—	—	10.5	15.00
								5	6.00	10.5	15.00
								10	12.00	17.5	20.00
								15	18.00	25.1	30.00
								20	24.10	32.6	35.00
	208-230-1-60	187	253	19.5	104.0	1.6	4.1	—/—	—/—	30.1/30.1	35/35
								3.8/5.0	18.1/20.8	30.1/31.2	35/35
								7.5/10	36.1/41.7	50.3/57.2	60/60
								11.3/15	54.2/62.5	72.8/83.3	90.00
								15.0/20.0	72.2/83.3	95.4/109.3	100/110
	208/230-3-60	187	253	12.4	88.0	1.6	4.1	—/—	—/—	21.2/21.2	25/25
								3.8/5.0	10.4/12.0	21.2/21.2	25/25
048								7.5/10	20.8/24.1	31.2/35.2	35/40
								11.3/15	31.3/36.1	44.2/50.2	45/60
								15.0/20.0	41.7/48.1	57.1/65.1	60/70
	460-3-60	414	506	5.8	44.0	0.9	2.0	—	—	10.2	15.00
								5	6.00	10.2	15.00
								10	12.00	17.5	20.00
								15	18.00	25.1	30.00
								20	24.10	32.6	35.00
	208/230-1-60	187	253	28.8	169.0	1.6	6.2	—/—	—/—	43.8/43.8	60/60
								3.8/5.0	18.1/20.8	43.8/43.8	60/60
								7.5/10	36.1/41.7	52.9/59.8	60/60
								11.3/15	54.2/62.5	75.4/85.9	90.00
								15.0/20.0	72.2/83.3	98.0/111.9	100/125
	208/230-3-60	187	253	17.3	123.0	1.6	6.2	—/—	—/—	29.4/29.4	35/35
								3.8/5.0	10.4/12.0	29.4/29.4	35/35
060								7.5/10	20.8/24.1	33.8/37.8	35/40
								11.3/15	31.3/36.1	46.8/52.9	50/60
								15.0/20.0	41.7/48.1	59.7/67.7	60/70
	460-3-60	414	506	9.0	62.0	0.9	3.2	—	—	15.4	20.00
								5	6.00	15.4	20.00
								10	12.00	19.0	20.00
								15	18.00	26.6	30.00
								20	24.10	34.1	35.00

See Legend and Notes on p. 19

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning and Refrigeration
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
RLA — Rated Load Amps

*Fuse or HACR Breaker.

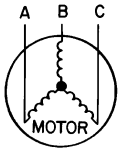
NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. The CGA (Canadian Gas Association) units may be fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
3. **Unbalanced 3-Phase Supply Voltage**
   Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

   % Voltage imbalance

$$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

EXAMPLE: Supply voltage is 460-3-60.



AB = 452 v
BC = 464 v
AC = 455 v

$$\text{Average Voltage} = \frac{452 + 464 + 455}{3}$$

$$= \frac{1371}{3}$$

$$= 457$$

Determine maximum deviation from average voltage.
(AB) 457 – 452 = 5 v
(BC) 464 – 457 = 7 v
(AC) 457 – 455 = 2 v

Maximum deviation is 7 v.

Determine percent of voltage imbalance.

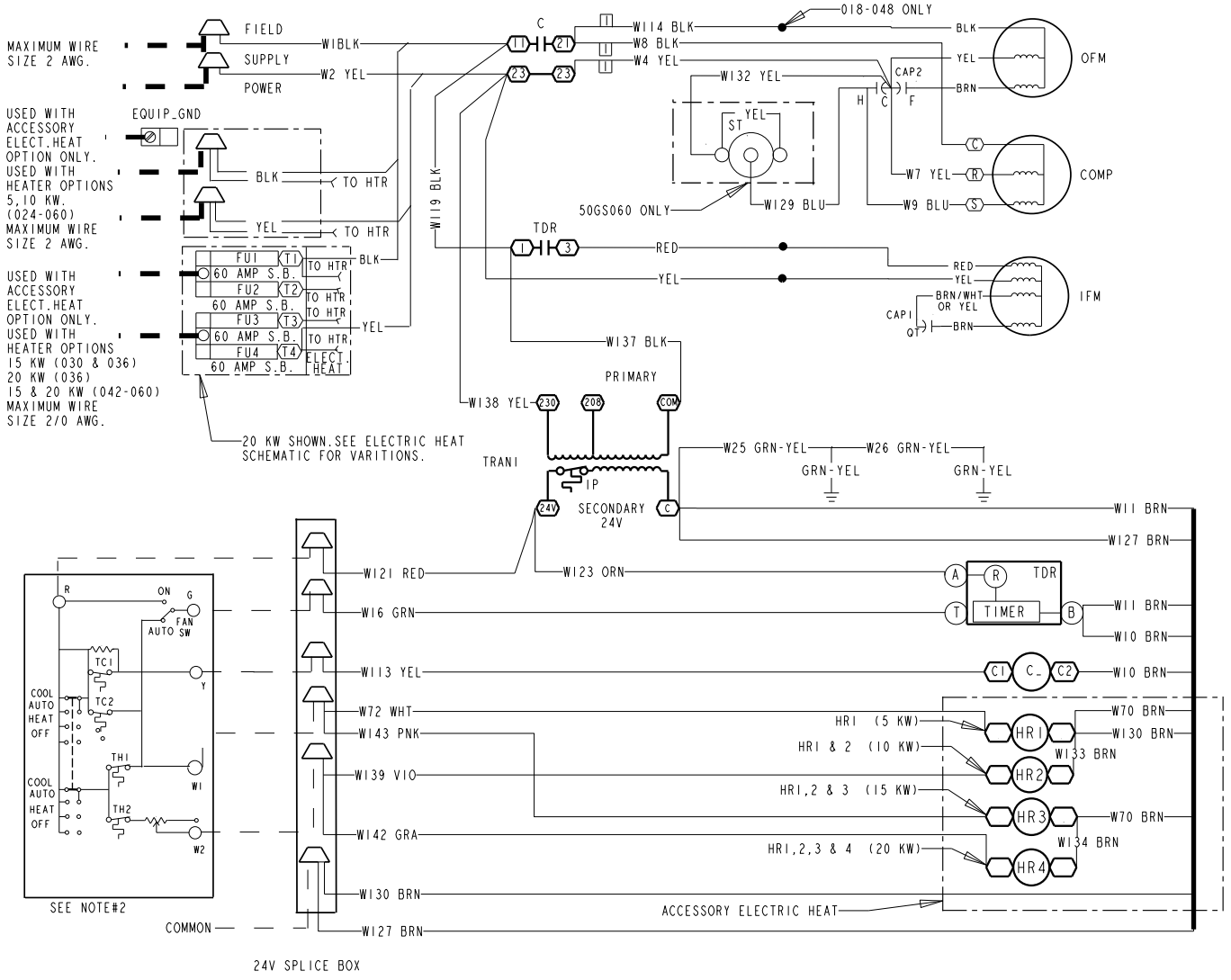
$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{457}$$

$$= 1.53\%$$

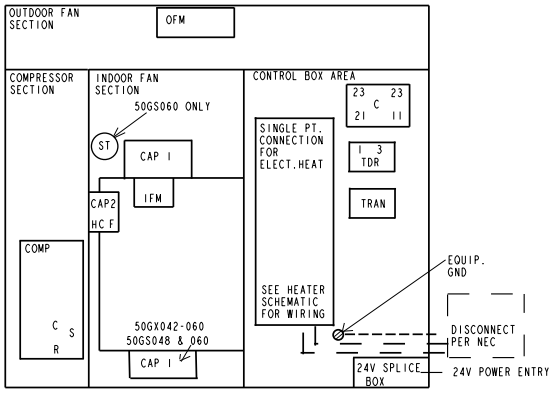
This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

Typical wiring schematic — 208/230-1-60 shown



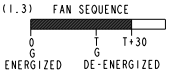
UNIT COMPONENT ARRANGEMENT



LEGEND

△	FIELD SPLICE	C	CONTACTOR
⬭	TERMINAL (MARKED)	CAP	CAPACITOR
○	TERMINAL (UNMARKED)	COMP	COMPRESSOR MOTOR
●	SPLICE	EQUIP	EQUIPMENT
⬬	SPLICE (MARKED)	FU	FUSE
—	FACTORY WIRING	GND	GROUND
- -	FIELD CONTROL WIRING	HR	HEATER RELAY
——	FIELD POWER WIRING	HTR	HEATER
- - -	ACCESSORY OR OPTIONAL WIRING	IFM	INDOOR FAN MOTOR
——	TO INDICATE COMMON POTENTIAL ONLY: NOT TO REPRESENT WIRING	IP	INTERNAL PROTECTOR
		OFM	OUTDOOR FAN MOTOR
		QT	QUADRUPLE TERMINAL
		S.B.	SLOW BLOW FUSE
		ST	THERMISTOR START
		TC	THERMOSTAT-COOLING
		TDR	TIME DELAY RELAY
		TH	THERMOSTAT-HEATING
		TRAN	TRANSFORMER

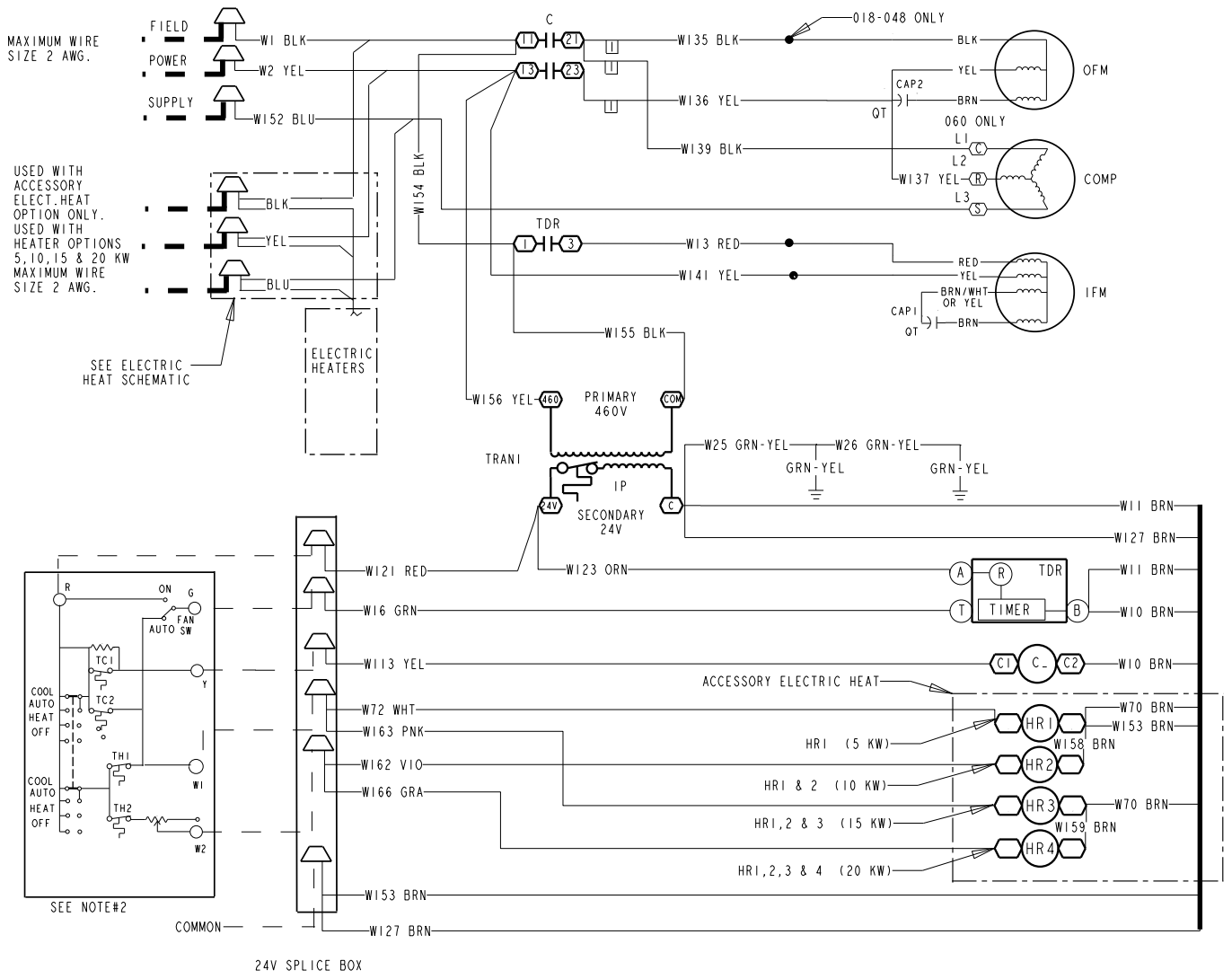
TDR (1,3) FAN SEQUENCE



NOTES:

1. IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED, IT MUST BE REPLACED WITH TYPE 90 DEGREE C WIRE OR IT'S EQUIVALENT.
2. SEE PRICE PAGES FOR THERMOSTAT AND SUBBASES.
3. USE 75 DEGREE COPPER CONDUCTORS FOR FIELD INSTALLATION.
4. FOR HIGH SPEED IFM, DISCONNECT RED WIRE FROM TDR;3 AND CONNECT BLK WIRE FROM IFM. FOR MEDIUM SPEED, DISCONNECT RED WIRE FROM TDR;3 AND CONNECT BLU WIRE FROM IFM.

Typical wiring schematic — 208/230-3-60 shown



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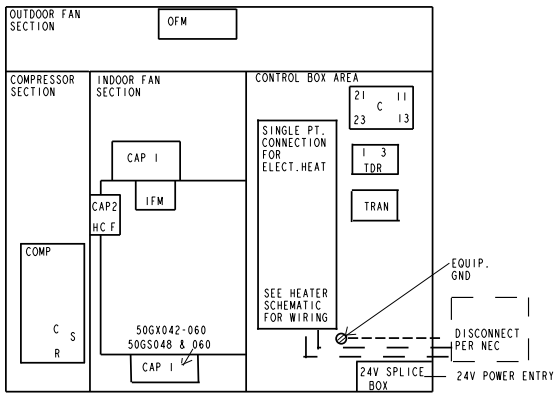

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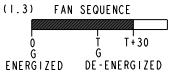
○ TERMINAL (UNMARKED)	COMP	COMPRESSOR MOTOR
● SPLICE	EQUIP	EQUIPMENT
⬬ SPLICE (MARKED)	GND	GROUND
—— FACTORY WIRING	HR	HEATER RELAY
- - FIELD CONTROL WIRING	IFM	INDOOR FAN MOTOR
═══ FIELD POWER WIRING	IP	INTERNAL PROTECTOR
--- ACCESSORY OR OPTIONAL WIRING	OFM	OUTDOOR FAN MOTOR
—— TO INDICATE COMMON POTENTIAL ONLY; NOT TO REPRESENT WIRING	QT	QUADRUPLE TERMINAL
	TC	THERMOSTAT-COOLING
	TDR	TIME DELAY RELAY
	TH	THERMOSTAT-HEATING
	TRAN	TRANSFORMER

TDR (1.3) FAN SEQUENCE



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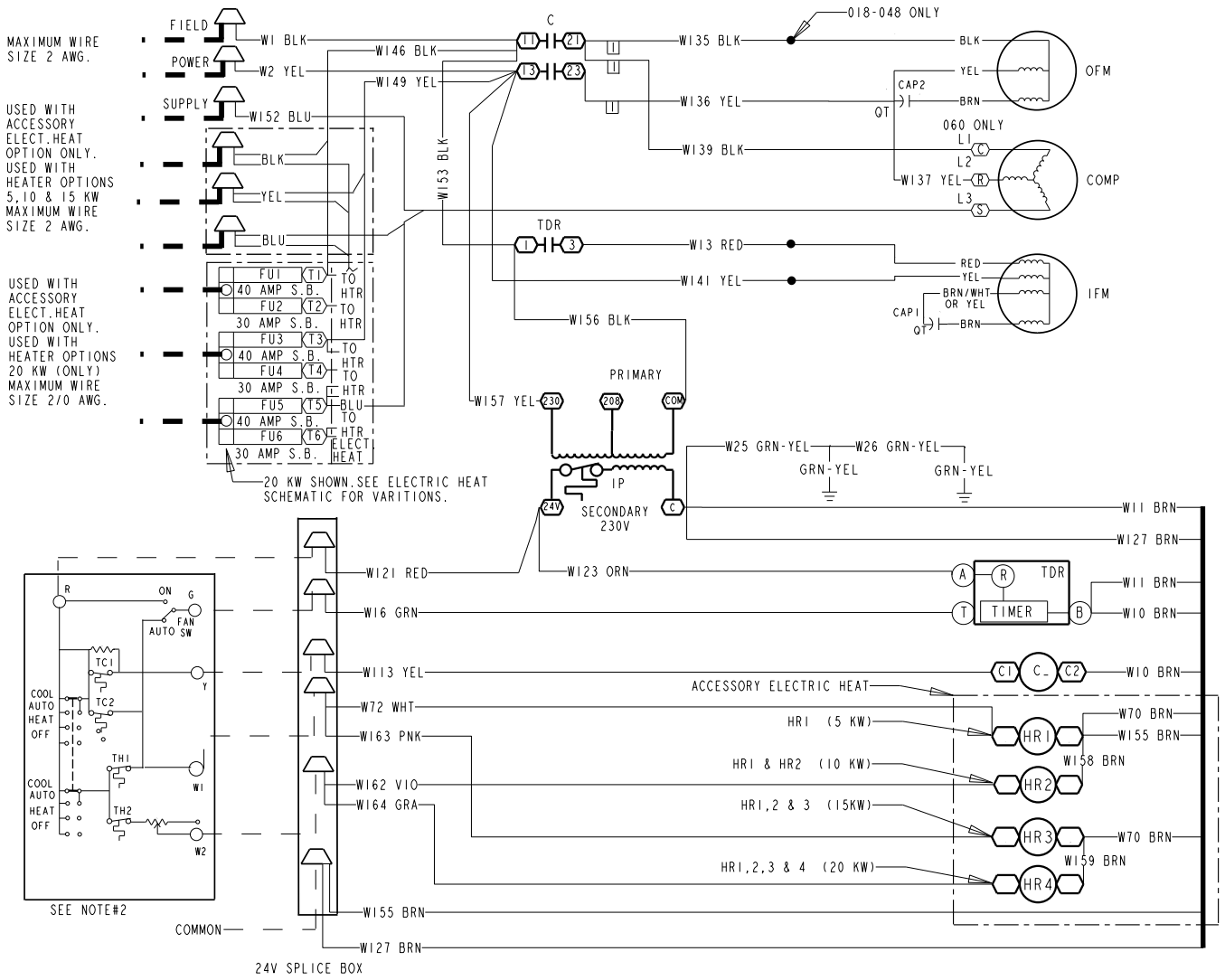
Typical wiring schematic — 460-3-60 shown



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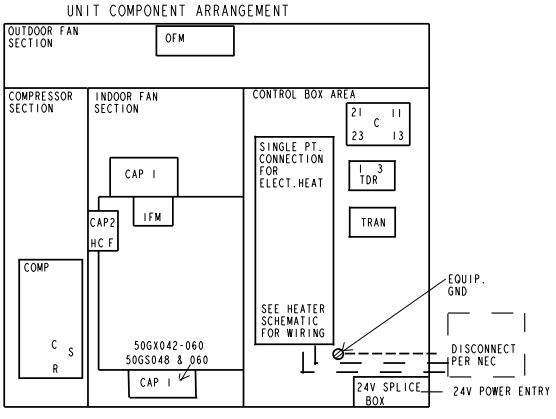

LEGEND

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⬭ TERMINAL (MARKED)	CAP	CAPACITOR
○ TERMINAL (UNMARKED)	COMP	COMPRESSOR MOTOR
● SPLICE	EQUIP	EQUIPMENT
⬬ SPLICE (MARKED)	FU	FUSE
—— FACTORY WIRING	GND	GROUND
– – FIELD CONTROL WIRING	HR	HEATER RELAY
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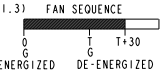

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Controls

Operating sequence

Cooling — When the system thermostat calls for cooling, 24 V is supplied to the "Y" and "G" terminals of the thermostat. This completes the circuit to the contactor coil (C) and indoor (evaporator) fan time delay relay (IFR). The normally open contacts of C close and complete the circuit through compressor motor (COMP) to outdoor (condenser) fan motor (OFM). Both motors start instantly. The set of normally open contacts of IFR close and complete the circuit through IFM. The IFM starts instantly.

On the loss of the thermostat call for cooling, 24 v is removed from both the "Y" and "G" terminals (provided the fan switch is in the "AUTO" position) deenergizing the compressor contactor and opening the contacts supplying power to compressor/OFM. After a 30-second delay, the IFM shuts off. If the thermostat fan selector switch is in the "ON" position, the IFM will run continuously.

NOTE: On units with a Time Guard® II device: once the compressor has started and then stopped, it cannot be restarted again until 5 minutes have elapsed.

Heating — If accessory electric heaters are installed, on a call for heat, circuit R-W is made through the thermostat contacts. Circuit R-G is made which energizes the IFR. If the heaters are staged, then the thermostat closes a second set of contacts (W2) when second stage is required. When thermostat is satisfied, contacts open, deenergizing the heater relay and the IFR.

Guide specifications

Packaged Electric Cooling Units
Constant Volume Application

HVAC Guide Specifications
Size Range: **2 to 5 Tons, Nominal Cooling**
Carrier Model Number: **50GX**

Part 1—General

SYSTEM DESCRIPTION

Outdoor rooftop or ground mounted, electric cooling unit utilizing a hermetic compressor for cooling duty and optional electric heating. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Condenser fan/coil section shall have a draw-thru design with vertical discharge for minimum sound levels.

QUALITY ASSURANCE

A. Unit shall be rated in accordance with ARI Standards 210/240-94 and 270-95.
B. Unit shall be designed in accordance with UL Standard 1995.
C. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.
D. Unit shall be UL listed and CULus certified as a total package for safety requirements.
E. Roof curb shall be designed to conform to NRCA Standards.
F. Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.
G. Cabinet insulation shall meet ASHRAE Standard 62P.

DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations.

Part 2 — Products

EQUIPMENT

A. General:
Factory-assembled, single-piece, cooling unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22), and special features required prior to field start-up.
B. Unit Cabinet:
1. Unit cabinet shall be constructed of phosphated, zinc-coated, pre-painted steel capable of withstanding 500 hours of salt spray.
2. Normal service shall be through a single removable cabinet panel.
3. The unit shall be constructed on a rust proof basepan that has an externally trapped, integrated sloped drain pan.
4. Evaporator fan compartment top surface shall be insulated with a minimum 1/2-in. thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The evaporator wall sections will be insulated with a minimum semi-rigid foil-faced board capable of being wiped clean. Aluminum foil-faced fiberglass insulation shall be used in the entire indoor air cavity section.
5. Unit shall have a field-supplied condensate trap.

C. Fans:
1. The evaporator fan shall be 3-speed, direct-drive, as shown on equipment drawings.
2. Fan wheel shall be made from steel, and shall be double-inlet type with forward curved blades with corrosion resistant finish. Fan wheel shall be dynamically balanced.
3. Condenser fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

D. Compressor:
1. Fully hermetic compressors with factory-installed vibration isolation.
2. Reciprocating and/or scroll compressors shall be standard on all units.

E. Coils:
Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. (Copper/copper and vinyl-coated construction available as option.) Tube sheet openings shall be belled to prevent tube wear.

F. Refrigerant Metering Device:
Refrigerant metering device shall be of the fixed orifice feed type.

G. Filters:
Filter section shall consist of field-installed, throw-away, 1-in. thick fiberglass filters of commercially available sizes.

H. Controls and Safeties:
1. Unit controls shall be complete with a self-contained low voltage control circuit.
2. Units shall incorporate a solid-state compressor protector that provides reset capability.

I. Operating Characteristics:
1. Unit shall be capable of starting and running at 125°F ambient outdoor temperature per maximum load criteria of ARI Standard 210.
2. Compressor with standard controls shall be capable of operation down to 55° F ambient outdoor temperature.
3. Unit shall be provided with 30-second fan time delay after the thermostat is satisfied.

J. Electrical Requirements:
All unit power wiring shall enter the unit cabinet at a single location.

K. Motors:
1. Compressor motors shall be of the refrigerant-cooled type with line-break thermal and current overload protection.

Guide specifications (cont)

2. All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.
3. Condenser fan motor shall be totally enclosed.

L. Special Features Available:

1. Louvered Grille:
   Wire grille shall be standard on all units. Louvered grille shall be available as a factory-installed option to provide hail guard and vandalism protection.
2. Coil Options:
   Shall include factory-installed optional copper/copper and vinyl-coated refrigerant coils.
3. Economizer:
   a. Economizer controls capable of providing free cooling using outside air.
   b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 in. wg pressure differential.
   c. Spring return motor shuts off outdoor damper on power failure.
4. Flat Roof Curb:
   Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
5. Manual Outdoor Air Damper:
   Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year-round ventilation.
6. Thermostat:
   To provide for one-stage heating and cooling in addition manual or automatic changeover and indoor fan control.
7. Low Ambient Package:
   Shall consist of a solid-state control and condenser coil temperature sensor for controlling condenser-fan motor operation, which shall allow unit to operate down to 0° F outdoor ambient temperature.
8. Filter Rack Kit:
   Shall provide filter mounting for downflow applications.
9. Controls Upgrade Kit:
   Shall provide high and low pressure safety protection.
10. Square-To-Round Duct Transitions:
    Shall have the ability to convert the supply and return openings from rectangular to round.
11. Compressor Protection:
    Solid-state control shall protect compressor by preventing "short cycling."
12. Duct Conversion Kit:
    Shall enable conversion of a factory supplied side discharge unit to downflow discharge airflow unit.
13. Crankcase Heater:
    Shall provide anti-floodback protection for low-load cooling applications.
14. Electric heaters:
    a. Electric heater shall be available as a field-installed option.
    b. Heater elements shall be open wire type, adequately supported and insulated with ceramic bushings.
    c. Electric heater packages must provide single point power connection capability.

Carrier Corporation • Indianapolis, IN 46231 4/00

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Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.